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EXAMINER	
ROSARIO, DENNIS	

ART UNIT	PAPER NUMBER
2621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/903,028	JAYANT ET AL.	
	Examiner	Art Unit	
	Dennis Rosario	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *AF amt. 10/11/2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 July 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The after final amendment was received on 10/11/2005. Claims 1-20 are pending.

Response to Arguments

2. Applicant's arguments, see after final amendment page 2, lines 6-8 filed 10/11/2005 and Examiner Interview Summary Report, filed 10/18/2005, with respect to the rejection of claim 1's "third intensity" under 102(b) has been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Apostolopoulos et al. (US Patent 5,850,294 A) in view of Miyabata et al. (US Patent 5,418,574 A) and further in view of Chong et al. (US Patent 5,844,614 A) regarding claims 1-11 and 18-20 and Scognamiglio et al. (cited IEEE article) regarding claims 12-17.

Specification

3. The disclosure is objected to because of the following informalities:

Page 1, lines 15,18 have blank lines that need to be updated.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 12-17 are rejected under 35 U.S.C. 102(a) as being anticipated by Scognamiglio et al. (cited IEEE article).

Regarding claim 12, Scognamiglio et al. discloses a system for enhancing a digitized image comprising:

a) a decoder operative (The decoder is inherent due to the following features of Scognamiglio et al.) to receive an encoded digitized image and to expand the encoded digitized image ("block-coded image" page 680,right column, line 10) to generate a decoded digitized image ("decoded image" page 685, left column, title of section "3.");

b) a post-processing unit operative to filter (Fig. 3 on page 681, label: " IIR lowpass filter") the decoded digitized image (Represented in fig. 2 as s(n,m,t-1) to process an image flaw ("noise" on page 681, right column, line 17 and "noisy pixel" on page 682, right column, 6th line from the bottom, "Blocking effect" and "Ringing effect" on page 686, and "corruption" on page 685, lines 6,7 from the bottom right column.);

c) an edge enhancer (Fig. 2, label: "Horizontal Control function" and shown in detail in figure 3 on page 681.) operative to detect an edge (fig. 3, label: "line detection") in the decoded digitized image and to enhance the edge (Fig. 3, label: "Enhancement of thin lines") in the decoded digitized image.

Regarding claim 13, Scognamiglio et al. discloses the system of claim 12, wherein the edge is a portion of the decoded digitized image separating a first image portion of substantially uniform image intensity from a second image portion of substantially uniform image intensity (see fig. 10 on page 686).

Claim 14 is rejected the same as claim 13. Thus, argument similar to that presented above for claim 13 is equally applicable to claim 14.

Regarding claim 15, Scognamiglio et al. discloses the system of claim 12, wherein the edge enhancer is further operative to detect the edge by:

a) comparing a subject portion of the decoded digitized image with a first adjacent portion of the decoded digitized image and with a second portion of the decoded digitized image (Using the method of equation (4) on page 682 and equation (1), last two equations on page 681 a comparison operation is performed between 3 pixels in the central horizontal, (n,m), (n,m-1) and (n,m+1) represented as |zx|, and central vertical directions, (n-1,m),(n,m) and (n+1,m) represented as |zy|, as shown in fig. 10, note that figure 10 has an error on the center right position, on page 686 in order to determine a horizontal line.) and

b) determining that the subject portion is associated with a lower image intensity level than a first image intensity associated with the first adjacent portion of the decoded digitized image and a second image intensity associated with the second adjacent portion of the decoded digitized image (This limitation is interpreted as determining that the subject image portion is darker than adjacent portions. In light of this interpretation, a horizontal "thickness of one pixel" in page 682, right column, line 7 is determined in a 3X3 array.).

Regarding claim 16, Scognamiglio et al. discloses the system of claim 12, wherein the post-processor removes the image flaw (The method of fig. 9 removes or "smooth[s]...corruption" on page 685, lines 6,7 from the bottom right column.) from the decoded digitized image, in response to a determination that an image intensity ("gradient values" on page 682, left column, line 9.) of a pixel ("current pixel" on page 685, right column, line 15.) associated with the image flaw ("noisy pixel" on page 682, right column, 6th line from the bottom) does not differ ("tend to zero" on page 685, right column, 3rd line from the bottom.) from at least one surrounding pixel (in a "3 x 3 window" on page 685, right column, line 13.) by more than a threshold value ("h'" of fig. 9 on page 685. Thus if the gradient value of the current pixel tends toward zero, represented in figure 9 as dx and computed using equation 10 on page 685 is less than "d1" as shown on the horizontal axis of fig. 9, then dx will be "attenuate[d]" on page 685, right column, 8th line from the bottom and shown as a decreasing function starting from (d1,1) to (0, -1/(αλ).). (Note that claim 16 is interpreted as an image flaw that is removed when two adjacent pixels does not differ significantly from each other by more than a threshold value; thus forming a stronger border if repeated on other pixels.).

Regarding claim 17, Scognamiglio et al. discloses the system of claim 12, wherein the post-processor adjusts the image flaw in the decoded digitized image, by modifying an image intensity of a pixel associated with the image flaw to correspond to a median ("variance" in page 685, right column, line 10 inherently includes a mean.) image intensity value of at least one surrounding pixel ("3 x 3 window" on page 685, right column, line 13).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-11 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Apostolopoulos et al. (US Patent 5,850,294 A) in view of Miyabata et al. (US Patent 5,418,574 A) and further in view of Chong et al. (US Patent 5,844,614 A).

Regarding claim 1, Apostolopoulos et al. teaches a method for processing an image, comprising the steps of:

a) comparing a first image intensity associated with a subject image portion with a second image intensity associated with an adjacent image portion;

b) determining an image intensity difference between the first image intensity and the second image intensity

c) classifying (Fig. 7, num. 85 is an edge detector where detecting is performing the same operation of classifying, because the edge detector is able to distinguish an edge from an non-edge which is the same operation of classifying an edge from non-edges.) the subject image portion (Fig. 7, label: EDGE MAP represents the subject image portion.) as a candidate edge portion (Fig. 7, label: EDGE MAP is the candidate edge portion because it is a representation of TRUE EDGES and FALSE EDGES; however, an indication of which potential edges of the EDGE MAP is a true edge or a false edge is not known until the edge map is inputted in a subsequent step, fig. 7, num. 86) in response to (A method of fig. 7,num. 85.):

c1) a determination that the first image intensity is less than the second image intensity and

c2) a determination that the image intensity difference is greater than a predetermined threshold image intensity difference;

d) determining (Fig. 7,num. 86) whether the candidate edge portion (Fig. 7, label: EDGE MAP) is a true edge portion (Fig. 7, label: TRUE EDGES); and

e) associating the subject image portion (Fig. 7, label: EDGE MAP represents the subject image portion of Apostolopoulos et al.) with a third image intensity, wherein the third image intensity is less than the first image intensity.

Apostolopoulos et al. does not teach the limitations of paragraphs a), b), c1), c2) and e).

Regarding paragraphs a) and b) and c1) and c2), Apostolopoulos et al. does teach an edge detection in fig. 7,num. 85 and in col. 7, line 36 and is deficient in the edge detection method or an apparatus and a) and b) and c1) and c2) are all deter mined previously in order to perform paragraph c). Therefore, Apostolopoulos et al. suggests using any edge detector or "an edge detector" in col. 7, line 36 that would inherently include a method or an apparatus with the limitations of paragraphs a) and b) and c1) and c2) and to remedy the deficiencies of Apostolopoulos et al.

Miyabata et al. (US Patent 5,418,574 A) does teach a method, col. 7, lines 26-38, and apparatus, fig. 1, numerals 2 and 3, of edge detection as suggested by Apostolopoulo et al. and teaches paragraphs a) and b) and c1) and c2):

a') comparing ("detecting" in col. 7, line 28) a first image intensity (A first "luminance val-ue" in col. 7, lines 29,30 of "adjacent pixels" in col. 7, line 30.) associated with a subject image portion with a second image intensity (A second "luminance val-ue" in col. 7, lines 29,30 of "adjacent pixels" in col. 7, line 30.) associated with an adjacent image portion;

b') determining an image intensity difference between the first image intensity and the second image intensity ("detecting...the difference in luminance values of adja-cent pixels..." in col. 7, line 33.)

c1') a determination that the first image intensity (A first "luminance val-ue" in col. 7, lines 29,30 of "adjacent pixels" in col. 7, line 30.) is less than (via "positive or negative" in col. 7, line 33 signs of "adja-cent pixels" in col. 7, lines 32,33 or "consecutive pixels" in col. 7, line 34.) the second image intensity (A second "luminance val-ue" in col. 7, lines 29,30 of "adjacent pixels" in col. 7, line 30. Thus a consecutive line of positive pixels would indicate that an edge has a darker intensity via a "difference" in col. 7, line 32 operation or the claimed first image intensity (foreground) is less (darker) than the second image intensity (background, which is lighter in intensity as compared to the first intensity).) and

c2') a determination that the image intensity difference is greater than a predetermined threshold image intensity difference (see col. 7, lines 34,35: "total difference");

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Apostolopoulos et al.'s edge detector and EDGE MAP with Miyabata et al.'s teaching of edge detection, because Miyabata et al. supplies what is deficient in the Apostolopoulos et al. reference and enables one of ordinary skill in the art to recreate Apostolopoulos et al.'s invention.

The combination of Apostolopoulos et al. and Miyabata et al. does not teach paragraph e), but Apostolopoulos et al. does teach "filtering the edge pixels [which] produces...blurring and...loss of image sharpness" in col. 7, lines 20-22 which suggests changing a value of an edge pixel to another value. Note that Apostolopoulos et al. teaches away from filtering edge pixels; however, Apostolopoulos does not preclude one of ordinary skill in the art to filter edge pixels. In addition, Apostolopoulos et al. teaches that "edge pixels exhibit distortion similarly to any pixel in the afflicted block...Furthermore, typically, the edge distortion is totally masked by the edge itself (col. 7, lines 18,19,22 and 23)." Thus, edge distortion is still present in the edges of Apostolopoulos et al., which suggests eliminating or reducing the edge distortion or "oscillatory distortion" in col. 7, line 8 to one of ordinary skill in the art.

Chong et al. (US Patent 5,844,614 A) teaches a filter that filters edges, fig. 1, num. 162, as suggested by Apostolopoulos et al. and teaches the last paragraph e):

e') associating (via the method of fig. 3A,3B and 4) the subject image portion (Fig. 10A, vertical column of "83" corresponds with "edges which have...intensity" in col. 2, line 66.) with a third image intensity (Fig. 10A, vertical column of "74"), wherein the third image intensity (Fig. 10A, vertical column of "74") is less (darker if 74 is considered the darker intensity in relation to 83) than the first image intensity (Note that fig. 10A, vertical column of "83" represents the subject image portion and the first image intensity. Note, the intensity of the vertical columns 83,74,79 and 80 are considered less is intensity or darker than the vertical columns of 50,51,56 and 47 of fig. 10A.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Apostolopoulos et al.'s filtering of pixels as shown in fig. 5, num. 88 and teaching of "filtering the edge pixels" in col. 7, lines 20-22 with Chong et al.'s teaching of filtering edge pixels, fig. 1,num. 162 to reduce Apostolopoulos et al.'s "oscillatory distortion" in col. 7, line 8 of Apostolopoulos et al. in an edge as shown in Chong et al., fig. 6B (reduced oscillation) in relation to fig. 10B (oscillation). Thus, Apostolopoulos et al. is able to reduce the edge distortion that remained on the edges using the teaching of Chong et al.

Regarding claim 2, the combination of Apostolopoulos et al. and Miyabata et al. and Chong et al. teaches the method of claim 1, wherein the step of determining whether the candidate edge portion is a true edge portion, comprises:

a) the step of determining ("examining" in col. 7, line 42 of Apostolopoulos et al.) whether the candidate edge portion (Fig. 7, label: EDGE MAP of Apostolopoulos et al. contains candidate edges.) is adjacent ("connect[ed]" in col. 7, line 42) to at least one second candidate edge portion (Fig. 7, label: EDGE MAP of Apostolopoulos et al. contains other candidate edges that are connected to other candidate edges. Note that candidate edges meet the criteria of Miyabata et al., ie. paragraphs a) and b and c1) and c2).).

Claims 3 and 4 is rejected the same as claim 2. Thus, argument similar to that presented above for claim 2 is equally applicable to claims 3 and 4.

Regarding claim 5, see fig. 5, label: RECONSTRUCTED IMAGE of Apostolopoulos et al. of the combination of Apostolopoulos et al.

Claims 6 and 7 are rejected the same as claim 5. Thus, argument similar to that presented above for claim 5 is equally applicable to claims 6 and 7.

Regarding claim 8, see "video" in col. 1, line 14 of Apostolopoulos et al. of the combination of Apostolopoulos et al.

Regarding claim 9, see "signal intensity" in col. 3, line 24 of Apostolopoulos et al. of the combination of Apostolopoulos et al. is interpreted the same as luminance or brightness or gray or grey or grayscale.

Regarding claim 10, Miyabata et al. of the combination of Apostolopoulos et al. teaches "luminance...and color" in the abstract, line 2.

Regarding claim 11, Apostolopoulos et al. of the combination of Apostolopoulos et al. teaches the method of claim 1, wherein the image is an image-type selected from the group consisting of:

a) gaming graphics or "graphics" in col. 3, line 35.

Regarding claim 18, Apostolopoulos et al. teaches a method for detecting and enhancing an edge in a decoded digitized image, comprising the steps of:

a) determining a first image intensity associated with a first pixel in the decoded digitized image;

b) determining a second image intensity associated with a second pixel in the decoded digitized image;

c) determining a third image intensity associated with a third pixel in the decoded digitized image;

d) classifying the first pixel as a first candidate edge pixel (Fig. 7, num. 85 is an edge detector where detecting is performing the same operation of classifying, because the edge detector is able to distinguish an edge from an non-edge which is the same operation of classifying an edge from non-edges.) in response to (A method of fig. 7,num. 85.):

d1) a determination that the first image intensity is less than the second image intensity and is less than the third image intensity;

e) determining whether the first pixel is adjacent to a second candidate edge pixel;

f) determining whether the second pixel is adjacent to a third candidate edge pixel;

g) classifying the first pixel as a true edge pixel in response to a determination that the first pixel is adjacent to the second candidate edge pixel and the second candidate edge pixel is adjacent to the third candidate edge pixel (regarding paragraphs e) and f) and g) see claim 2, above.);

h) associating a fourth image intensity with the first pixel, the fourth image intensity being lower than the first image intensity.

Apostolopoulos et al. does not teach paragraphs a) and b) and c) and d1) and h). Regarding paragraphs a) and b) and c) and d1).

Apostolopoulos et al. does teach an edge detection in fig. 7,num. 85 and in col. 7, line 36 and is deficient in the edge detection method or an apparatus and a) and b) and c) and d1) are all determined previously in order to perform paragraph d).

Therefore, Apostolopoulos et al. suggests using any edge detector or "an edge detector" in col. 7, line 36 that would inherently include a method or an apparatus with the limitations of paragraphs a) and b) and c1) and c2) and to remedy the deficiency of Apostolopoulos et al.

Miyabata et al. (US Patent 5,418,574 A) does teach a method, col. 7, lines 26-38, and apparatus, fig. 1, numerals 2 and 3, of edge detection as suggested by Apostolopoulo et al. and teaches paragraphs a) and b) and c) and d1):

a') determining a first image intensity associated with a first pixel in the decoded digitized image;

b') determining a second image intensity associated with a second pixel in the decoded digitized image;

c') determining a third image intensity associated with a third pixel in the decoded digitized image (Regarding paragraphs a) and b) and c) see claim 1, a'), above.);

d1') a determination that the first image intensity (A first "luminance val-ue" in col. 7, lines 29,30 of "adjacent pixels" in col. 7, line 30.) is less than (via "positive or negative" in col. 7, line 33 signs of "adja-cent pixels" in col. 7, lines 32,33 or "consecutive pixels" in col. 7, line 34.) the second image intensity (A second "luminance val-ue" in col. 7, lines 29,30 of "adjacent pixels" in col. 7, line 30.) and is less than the third image intensity (Thus, a consecutive line of positive pixels, which would include the claimed third image intensity, would indicate that an edge has a darker intensity via a "difference" in col. 7, line 32 operation or the claimed first image intensity (foreground) is less (darker) than the second image intensity and the third image intensity (which both may be the background, which is lighter in intensity as compared to the first intensity).;

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Apostolopoulos et al.'s edge detector and EDGE MAP with Miyabata et al.'s teaching of edge detection, because Miyabata et al. supplies what is deficient in the Apostolopoulos et al. reference and enables one of ordinary skill in the art to recreate Apostolopoulos et al.'s invention.

The combination of Apostolopoulos et al. and Miyabata et al. does not teach paragraph e), but Apostolopoulos et al. does teach "filtering the edge pixels [which] produces...blurring and...loss of image sharpness" in col. 7, lines 20-22 which suggests changing a value of an edge pixel to another value. Note that Apostolopoulos et al. teaches away from filtering edge pixels; however, Apostolopoulos does not preclude one of ordinary skill in the art to filter edge pixels. In addition, Apostolopoulos et al. teaches that "edge pixels exhibit distortion similarly to any pixel in the afflicted block...Furthermore, typically, the edge distortion is totally masked by the edge itself (col. 7, lines 18,19,22 and 23)." Thus, edge distortion is still present in the edges of Apostolopoulos et al., which suggests eliminating or reducing the edge distortion or "oscillatory distortion" in col. 7, line 8 to one of ordinary skill in the art.

Chong et al. (US Patent 5,844,614 A) teaches a filter that filters edges, fig. 1, num. 162, as suggested by Apostolopoulos et al. and teaches the last paragraph e):

e') associating (via the method of fig. 3A,3B and 4: fig. 3A uses surrounding values P1-P8 to generate a new value SO as shown in fig. 3B and shown in fig. 4, step: S25. Thus, P1-P8 are associated with SO, because P1-P8 are required in order to determine SO.) a fourth image intensity (fig. 10A, vertical column of "74" or any one of P1-P8.) with the first pixel (Fig. 10A, any one of "83" in the vertical column of "83" represents a pixel, SO.), the fourth image intensity (fig. 10A, vertical column of "74" or any one of P1-P8) being lower (or darker) than the first image intensity (Fig. 10A, any one of "83" or SO of fig. 3B in the vertical column of "83" represents an intensity value that is lighter than fig. 10A's vertical column of "74" or any one of P1-P8. In addition, fig.6A is the end result of Chong et al.'s invention and shows a vertical column of "79" which is considered darker or lower in intensity of the vertical column of "83" of fig. 10A which is a decoded image.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Apostolopoulos et al.'s filtering of pixels as shown in fig. 5, num. 88 and teaching of "filtering the edge pixels" in col. 7, lines 20-22 with Chong et al.'s teaching of filtering edge pixels, fig. 1,num. 162 to reduce Apostolopoulos et al.'s "oscillatory distortion" in col. 7, line 8 of Apostolopoulos et al. in an edge as shown in Chong et al., fig. 6B (reduced oscillation) in relation to fig. 10B (oscillation) of Chong et al. Thus, Apostolopoulos et al. is able to reduce the edge distortion that remained on the edges using the teaching of Chong et al.

Claim 19 is rejected the same as claim 18, paragraph h'). Thus, argument similar to that presented above for claim 18, paragraph h') is equally applicable to claim 19.

Regarding claim 20, Chong et al. of the combination of Apostolopoulos et al. and Miyabata et al. and Chong et al. teaches the method of claim 18, further comprising the steps of:

a) determining a background color (Fig. 4, step S7's NO output and mentioned in column 9, lines 46-48 implies determining an other side or background "intensity" in col. 1, line 66, as shown in fig. 10A by the vertical columns of 50,51,56 and 47, of and "edge" in col. 9, line 37, as shown in fig. 10A by the vertical columns of 83,74,79 and 80.) associated with the first pixel (Fig. 3A, label PO and shown in fig. 10A by any one "83" of the vertical column of "83.");

b) determining a quality level of the digitized image (Regarding fig. 1,num. 158, "Th1... determin[es which]...block to be smoothed...(col. 8, lines 47-49)." Thus, Th1 determines the quality of an image for smoothing the quality.); and

c) selecting (Fig. 4, steps S13 and S15 and S17's YES output.) the fourth image intensity (Regarding fig.1 num. 162, fig. 10A, vertical column of "74" and shown in fig. 4, steps S19 or S21 or S23 as "sum", note that "sum" is a function of "Pi" which is any one surrounding pixel as shown in fig. 3A, is selected by fig. 4, steps S13 and S15 and S17's YES output.) based on the background color (Fig. 10A, vertical column of "74" and shown in fig. 4, steps S19 or S21 or S23 as "sum", note that "sum" is a function of "Pi" which is any one surrounding pixel as shown in fig. 3A, is selected by fig. 4, steps S13 and S15 and S17's YES output based on the determination of fig. 4, step S7's NO output and mentioned in column 9, lines 46-48 implies determining an other side or background "intensity" in col. 1, line 66, as shown in fig. 10A by the vertical columns of 50,51,56 and 47. Thus, fig. 4, step S7 is able to differentiate borders as shown in fig. 10A where one side of the border corresponds to the claimed background color.) and the quality level (Regarding fig. 1,num. 158, "Th1... determine[es which]...block to be smoothed...(col. 8, lines 47-49)." Thus, Th1 determines the quality of an image for smoothing the quality.).

Allowable Subject Matter

8. The following claim 1 drafted by the examiner and considered to distinguish patentably over the art of record in this application, is presented to applicant for consideration:

1. A method for processing an image, comprising the steps of:

a) comparing a first image intensity associated with a subject image portion with a second image intensity associated with an adjacent image portion;

b) determining an image intensity difference between the first image intensity and the second image intensity

c) classifying the subject image portion as a candidate edge portion in response to:

c1) a determination that the first image intensity is less than the second image intensity and

c2) a determination that the image intensity difference is greater than a predetermined threshold image intensity difference;

d) determining whether the candidate edge portion is a true edge portion; and

e) associating the subject image portion with a third image intensity **by adjusting an intensity slope as a function of quality or background intensity of an image**, wherein the third image intensity is less than the first image intensity.

Support for the bold text is found in the specification on page 18, line 3 to page 19, line 3 and in fig. 9, num. 908 which can perform the methods of figures 10 for quality and 11 for background.

The cited art does not disclose 9 or suggest adjusting an intensity slope (as shown in fig. 6b, numerals 650 to 652 of the specification) as a function of quality (as shown in fig. 10, horizontal axis of the specification) or background (as shown in fig. 11, horizontal axis of the specification) of an image. To amend claim 1 as suggested in draft claim 1 would overcome the art of record and require a new search and consideration.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 6-3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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